

CLAIMS

We claim:

1. A slurry for chemical mechanical polishing (CMP) of a metal comprising film, comprising a solution including at one halide ion and at least one halogen species for reacting with said metal film to form a surface layer on said film.
2. The slurry of claim 1, wherein said halogen comprises I_2 .
3. The slurry of claim 1, wherein said halide ion comprises I^- .
4. The slurry of claim 1, wherein said halogen is formed from at least one chemical which forms said halogen *in-situ* in said the slurry.
5. The slurry of claim 4, wherein said halogen is I_2 .
6. The slurry of claim 1, wherein said halogen comprises Br_2 or Cl_2 .
7. The slurry of claim 1, further comprising particles such as silica, alumina, titania, yttria, zirconia, zinc oxide, porous silica, or alumina cores or silica cores coated with alumina, yttria, titania, or a polymer.

8. The slurry of claim 1, further comprising at least one surfactant.
9. The slurry of claim 1, further comprising at least one polymer additive.
10. The slurry of claim 1, further comprising at least one interhalogen compound.
11. The slurry of claim 1, further comprising at least one salt.
12. A method for chemical mechanical polishing (CMP) a metal comprising containing film, comprising the steps of:

providing a slurry including at one halide ion and at least one halogen species, said slurry reacting with said metal film to form a surface layer on said film, and

removing said surface layer.
13. The method of claim 12, wherein abrasive particles embedded in a polishing pad, or an inorganic layer coated on a polymeric pad is used for said removing step.
14. The method of claim 13, wherein said metal film comprising film includes copper.
15. The method of claim 12, wherein said halogen comprises I₂.

16. The method of claim 12, wherein said halide ion comprises I⁻.
17. The method of claim 12, wherein said halogen comprises Br₂ or Cl₂.
18. The method of claim 12, wherein said slurry further comprises at least one surfactant or polymer additive.
19. The method of claim 12, wherein said slurry includes at least one interhalogen compound.
20. The method of claim 12, wherein said slurry includes at least one surfactant.